## CONTENTS

### NUMBER 1, JANUARY, 1945

Methods for Determination of Alpha-Amylase. I. Classification of Enzyme Assay Methods, Standardization of Samples, and Calibration of Modified Procedures. *Quick Landis* ..... 1
Ethanol Production from Wheat Hydrolysates and Stillage by Yeast and Fusaria. *Louis J. Sciarini and John C. Wirth* .... 11
Investigation of Problems Associated with the Use of Malt in Industrial Alcohol Production. *W. G. Artis and R. F. Bawden* 22
A Preliminary Investigation of the Application of the Karl Fischer Reagent to the Determination of Moisture in Cereals and Cereal Products. *Richard H. Fosnot and Robert W. Haman* .. 41
The Thiamine Content of Raw and Parboiled Rices. *Relda Cailleau, Lowell E. Kidder, and Agnes Fay Morgan* ..... 50
Dough Development and Mechanical Gluten Dispersion in Relation to Amount of Mixing and to the Flour-Water Ratio. *C. O. Swanson and A. C. Andrews* ..... 60
Comparative Effects of Variety and Environment on Some Properties of North Dakota Hard Red Spring Wheat Flours. *R. H. Harris, L. D. Sibbitt, and G. M. Scott* ..... 75
Book Review. *Advances in Protein Chemistry.* By M. L. Anson and John T. Edsall ..... 81

### NUMBER 2, MARCH, 1945

Simplified Colorimetric Determination of Thiamine in Cereal Products. *Melvin Hochberg, Daniel Melnick, and Bernard L. Oser* ..... 83
The Thiamine and Riboflavin Content of the Grain and Flour of Certain Varieties of Kansas-Grown Wheat. *Doris E. Whitney, Helen Herren, and Beulah D. Westerman* ..... 90
The Choline Content of Pure Varieties of Wheat, Oats, Barley, Flax, Soybeans, and Milled Fractions of Wheat. *David Glick* 95
Multiple Bleaching of Flour. I. Bleaching Efficiency as Influenced by Flour Agitation and Optimum Utilization of the Bleaching Agent. *C. G. Ferrari, W. S. Hutchinson, and D. K. Mecham* ..... 101
Sorghum Amylase. *Eric Kneen* ..... 112
Effects of Papain, Yeast Water, Cysteine, and Glutathione on Gluten Dispersion or on Disintegration as Indicated by Gluten Recovery and by Mixogram Patterns. *C. O. Swanson and A. C. Andrews* ..... 134

Methods of Estimating and the Effect of Variety and Protein Level on the Baking Absorption of Flour. *Karl F. Finney*.. 149
Note on a Biochemical Method for Determining Crude Fiber in Corn Meal. *Harold W. Woodson and Helen S. Mackenzie*... 158

NUMBER 3, MAY, 1945

Ascorbic Acid and Some Related Compounds as Oxidizing Agents in Doughs. *R. M. Sandstedt and B. D. Hites*..... 161
Multiple Bleaching of Flour. II. Bleaching Efficiency in Systems Involving Nitrogen Peroxide and Another Bleaching Gas. *W. S. Hutchinson, C. G. Ferrari, and R. I. Derby*..... 187
Multiple Bleaching of Flour. III. Bleaching Efficiency in Systems Involving Nitrogen Trichloride and Another Bleaching Gas. *C. G. Ferrari, W. S. Hutchinson, and R. I. Derby*..... 197
Effect of Fermentation, Rest Periods, and Formula Ingredients on Mixogram Patterns. *John A. Johnson and C. O. Swanson* 204
The Effect of Mixing Speed and Dry Milk Solids on Bread Volume. *Emery C. Swanson and E. G. Bayfield*..... 214
Varietal Responses to Certain Baking Ingredients Essential in Evaluating the Protein Quality of Hard Winter Wheats. *K. F. Finney and M. A. Barmore*..... 225
Optimum vs. Fixed Mixing Time at Various Potassium Bromate Levels in Experimental Bread Baking. *K. F. Finney and M. A. Barmore*..... 244
An Investigation of Shorter Bread Sponges. *Harry C. Johnson*. 255
Determination of Shelf Life of Packaged Cereals. *C. E. Felt, A. C. Buechele, and L. F. Borchardt; R. C. Koehn, F. A. Collatz, and F. C. Hildebrand*..... 261
Communication to the Editor: A Rapid Method for the Combined Determination of Thiamine and Riboflavin in Cereal Products. *A. Hoffer and A. W. Alcock*..... 271
Book Review. *The Amino Acid Composition of Proteins and Foods*. By Richard J. Block and Diana Bolling..... 272

NUMBER 4, JULY, 1945

Measurement of the Growth-Promoting Quality of Dietary Protein. *Richard H. Barnes, Jean E. Maack, Mary J. Knights, and George O. Burr*..... 273
The Nutritive Quality of Some Plant Proteins and the Supplemental Effect of Some Protein Concentrates on Patent Flour and Whole Wheat. *E. L. Hove, L. E. Carpenter, and C. G. Harrel*..... 287

Functional Properties of Soya Flour as a Bread Ingredient. *R. T. Bohn and H. H. Favor* ..... 296
Amino Acid Composition of Grain Alcohol Fermentation By-Products. *Werner Baumgarten, Leonard Stone, and C. S. Boruff* ..... 311
Influence of Dough Constituents on Fermentation. *Lawrence Atkin, Alfred S. Schultz, and Charles N. Frey* ..... 321
The Distribution of Thiamine and Riboflavin in Wheat Grains. *G. Fred Somers, Mary H. Coolidge, and Karl C. Hamner* ..... 333
Effect of Kilning on the Amylolytic Activity of Barley Malts. *Paul R. Witt, Jr.* ..... 341
Book Review. *The Chemistry and Technology of Food and Food Products.* II. Prepared by a group of specialists under the editorship of Morris B. Jacobs ..... 349

## Number 5, September, 1945

Studies of the Composition of the Wheat Kernel. I. Distribution of Ash and Protein in Center Sections. *V. H. Morris, Thelma L. Alexander, and Elizabeth D. Pascoe* ..... 351
Studies of the Composition of the Wheat Kernel. II. Distribution of Certain Inorganic Elements in Center Sections. *V. H. Morris, Elizabeth D. Pascoe, and Thelma L. Alexander* ..... 361
Preliminary Studies with the Extensograph. *Paul P. Merritt and C. H. Bailey* ..... 372
Mixing Tolerances of Varieties of Hard Red Spring Wheat. *T. R. Aitken and M. H. Fisher* ..... 392
Effects of Variety and Environment on the Amylases of Germinated Wheat and Barley. *Eric Kneen and H. L. Hads* ..... 407
Effect of Moisture Content, Temperature, and Length of Storage on the Development of "Sick" Wheat in Sealed Containers. *Edward P. Carter and George Y. Young* ..... 418
Thiamine Retention and Composition of U. S. Army Bread. *R. B. Meckel and G. Anderson* ..... 429
Analysis of Data for A.A.C.C. Check Sample Service. I. Protein and Thiamine Results 1943–44. *W. O. S. Meredith* ..... 437
Report of the 1944–45 Committee on Niacin (Nicotinic Acid) Assay. *Harold K. Steele* ..... 448
Report of the 1944–45 Committee on Riboflavin Assay. *Aaron Arnold* ..... 455
Book Review. *The Estimation of Vitamin A.* By N. T. Gridgeman ..... 462

NUMBER 6, NOVEMBER, 1945

Wheat Starch Properties in Relation to Grain Maturity. *Claude W. Bice, M. M. MacMasters, and G. E. Hilbert* ..... 463
Grain Storage Studies. I. Influence of Localized Heating of Soybeans on Interseed Air Movements. *Max Milner and W. F. Geddes* ..... 477
Grain Storage Studies. II. The Effect of Aeration, Temperature, and Time on the Respiration of Soybeans Containing Excessive Moisture. *Max Milner and W. F. Geddes* ..... 484
Activity-pH Relationships and Inhibition of Proteolytic Enzyme Activity of Milled Fractions of Wheat. *Marjorie Howe and David Glick* ..... 502
Glutamic Acid Content of Feed Materials. *Werner Baumgarten, Adaline N. Mather, and Leonard Stone* ..... 514
A Photometric Evaluation of the "Appearance" of Various Malt Syrups as Influenced by Storage Conditions. *Richard H. Fosnot and Robert W. Haman* ..... 522
Comparisons Between Some Properties of Mixograms from Flour and Unsifted Whole Wheat Meal. *L. D. Sibbitt and R. H. Harris* ..... 531
On a Factor in Oat Bran Markedly Antagonistic to Baking Quality of Wheat Flour. *C. R. Jones and J. B. Hutchinson* ..... 538
Effect of Room Temperature in Experimental Baking. *E. G. Bayfield, John A. Johnson, and Emery C. Swanson* ..... 547
Report of the 1944–45 Committee on Testing Biscuit and Cracker Flours. *Frank R. Schwain* ..... 553
Communication to the Editor. A Simple Test for Riboflavin in Enriched Flours. *Paul W. Hodler and George Garnatz* ..... 559
Book Review. *Industrial Oil and Fat Products.* By Alton E. Bailey ..... 560
Author Index ..... 561
Subject Index ..... 563